Space Weather Forecast

Issued on Saturday, 13 November 2021 at 00:19 Local

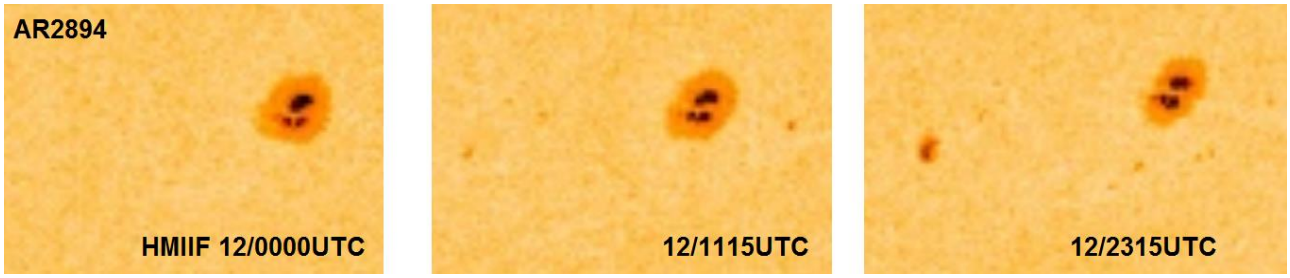
This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar Activity was very low through the UTC day of Friday 12 November, with no significant X-ray flares. There are currently three sunspot regions on the facing side of the sun. The main change was evident in the largest sunspot near the middle of the sun, which developed a trailing spot into the UTC evening to be re-classified as a bipolar group (magnetically, consequently slightly more liable to produce flares). The reverse occurred in another central sunspot, which shrank to become unipolar, while the final region became difficult to analyse on the western horizon - appearing unipolar.

Figure 1: Development of the largest sunspot group on the facing side of the sun in the past 24 hours – note the emergence of a trailing group (left of image – 'trailing' as the sunspot is heading rightwards/westwards).



No Earth-directed Coronal Mass Ejections (CMEs) were observed in available satellite imagery.

Solar Wind / Geomagnetic Activity: The solar wind was characteristic of a slow regime, with a gradual decline in the solar wind speed within background levels. Both the number of particles comprising the solar wind and the magnitude of the magnetic field associated with them were unremarkable and at background, while the solar wind magnetic field was largely co-aligned with Earth's to limit any activity.

The net result of these solar wind measures was for quiet geomagnetic indices throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be very low, with only a daily 20% slight chance of Common-class flares from the three sunspot regions on the facing side of the sun.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the forecast.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2021. All Rights Reserved.

Met Office Space Weather Forecast

The solar wind speed is expected to mainly be at background, with any enhancements from the arrival of 'coronal hole' fast wind expected to be limited, and probably confined to day one, Saturday 13 November, if present. Geomagnetic activity is expected to be mostly quiet.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	2	2	2	2
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2021. All Rights Reserved.